

## MISCELLANEOUS PHENOMENA.

## FOREST AND PRAIRIE FIRES.

Forest and prairie fires occurred at the following places:  
 Pike's Peak, Colorado: on the 9th a prairie fire of small extent was burning on the plains toward the southeast.  
 Fort Reno, Indian Territory: prairie fire, 25th.  
 Comfort, Texas: prairie fires, 26th, 27th, 28th.  
 Duke, Florida: forest fires, 9th, 18th.

## METEORS.

Meteors were observed on the following dates:  
 Florida.—Merritt's Island, 2d, 27th; Archer, 9th; Limona, 11th; Alva, 26th.  
 Illinois.—Jacksonville, 21st.  
 Iowa.—Monticello, 28th.  
 Maryland.—Woodstock, 1st, 11th, 13th, 15th, 16th, 19th, 25th; Fallston, 16th.  
 Massachusetts.—Blue Hill Observatory, 12th; Vineyard Haven, 19th.  
 New Hampshire.—Nashua, 28th.  
 Wisconsin.—Manitowoc, 19th, 21st.

## MIGRATION OF BIRDS.

*Geese flying northward.*—Fort Reno, Indian Territory, 9th; Saint Louis, Missouri, 17th; Fort Madison, Iowa, 12th, 17th; Augusta, Georgia, 18th; Globe, Kansas, 20th; Rappahannock, Virginia, 23d, 27th, 28th; Manhattan, Kansas, 26th; Brownville, Nebraska, 27th, 28th; Erie, Pennsylvania, 28th.  
*Geese flying southward.*—Augusta, Georgia, 14th; Manhattan, Kansas, 17th; East Portland, Oregon, 20th, 22d, 24th; Mottville, Michigan, 21st; Dale Enterprise, Virginia, 23d, 24th, 26th.  
*Ducks flying northward.*—Pekin, Illinois, 8th, 15th, 25th; Jacksonville, Illinois, 23d; Tatoosh Island, Washington Territory, 25th; Manhattan, Kansas, 27th.  
*Ducks flying southward.*—Memphis, Tennessee, 2d; Jacksonville, Illinois, 11th; Davenport, Iowa, 17th.

## POLAR BANDS.

Polar bands were reported from the following stations:  
 Arkansas.—Lead Hill, 26th.  
 California.—Keeler, 22d.  
 Florida.—Archer, 18th, 26th; Duke, 17th.  
 Illinois.—Pekin, 25th; Riley, 10th, 25th.  
 Indiana.—Laconia, 4th.  
 Kansas.—Salina, 25th, 27th.  
 Maine.—Gardiner, 5th.  
 New Jersey.—Beverly, 9th; Moorestown, 16th.  
 North Carolina.—Hatteras, 27th.  
 Ohio.—Napoleon, 3d, 9th, 25th; Wauseon, 25th, 28th.  
 Pennsylvania.—Catawissa, 4th, 25th.  
 Virginia.—Dale Enterprise, 24th, 25th; Wythville, 6th, 9th, 19th, 22d.  
 Washington Territory.—Tatoosh Island, 14th.

## SUN SPOTS.

Mr. H. Govey, of North Lewisburg, Champaign county, Ohio, reports having observed sun spots on the 4th, 18th, 19th, 24th, 26th, and 28th.

## SAND STORMS.

Salt Lake City, Utah: brisk to high south and northwest winds prevailed during the 1st, attaining at 4.30 p. m. a velocity of thirty-three miles per hour; at 5 p. m. the wind backed to northwest and increased in force; in the afternoon, and at night the air was filled with alkali dust from the desert west of the Great Salt Lake, covering all exposed objects with a white coating.

Sand storms occurred also at the following stations:

Abilene, Texas, 10th.  
 Rio Grande City, Texas, 26th, 27th.  
 Yuma, Arizona, 15th, 22d.  
 Fort Grant, Arizona, 22d.

## WATER-SPOUT.

Capt. E. O. Clark, of the barkentine "Josephine," reports: "18th, at 1.36 p. m., Greenwich mean time, in N. 29° 57', W. 79° 45', sighted a large water-spout about sixteen degrees above the horizon and about one mile wnw. from the vessel; the spout moved gradually to the northward, with a squall going in the same direction."

## VERIFICATIONS.

## INDICATIONS.

The predictions for February, 1887, were made by 1st Lieutenant Thomas M. Woodruff, 5th Infantry, Acting Signal Officer and Assistant, and were verified by 2d Lieutenant F. M. M. Beall, Signal Corps, U. S. Army, Assistant.

The detailed comparison of the tri-daily indications for February, 1887, with the telegraphic reports of the twenty-four hours for which the indications were prepared, shows the general average percentage of verifications to be 72.74. The percentages for the different elements are: Weather, 70.74; wind, 67.01; temperature, 76.68. By states, etc., the percentages are: For Maine, 76.88; New Hampshire, 72.50; Vermont, 71.01; Massachusetts, 75.12; Rhode Island, 73.87; Connecticut, 70.74; eastern New York, 76.19; western New York, 78.81; eastern Pennsylvania, 73.93; western Pennsylvania, 75.83; New Jersey, 76.16; Delaware, 73.22; Maryland, 77.64; District of Columbia, 74.10; Virginia, 75.50; North Carolina, 71.99; South Carolina, 69.43; Georgia, 73.81; eastern Florida, 68.72; western Florida, 71.32; Alabama, 74.79; Mississippi, 71.25; Louisiana, 70.18; Texas, 66.70; Arkansas, 67.08; Tennessee, 69.76; Kentucky, 74.11; Ohio, 70.89; West Virginia, 71.79; Indiana, 74.82; Illinois, 72.80; eastern Michigan, 73.65; western Michigan, 72.00; Wisconsin, 71.81; Minnesota, 71.34; Iowa, 75.71; Kansas, 70.57; Nebraska, 69.76; Missouri, 74.11; Colorado, 72.23; east Dakota, 65.00.

There were nine omissions to predict, out of 9,996, or 0.09 per cent. Of the 9,987 predictions that have been made, seven hundred and seventy-eight, or 7.79 per cent., are considered to have entirely failed; seven hundred and thirty-one, or 7.32 per cent., were one-fourth verified; 2,266, or 22.69 per cent., were one-half verified; 1,556, or 15.58 per cent., were three-fourths verified; 4,656, or 46.62 per cent., were fully verified, so far as can be ascertained from the tri-daily reports.

Below are given for the Pacific coast the percentages of indications verified for January, 1887; this data was received too late for publication in the REVIEW of that date. From the 1st to the 3 p. m. report of the 8th the predictions were made by 2d Lieutenant W. A. Glassford, Signal Corps, U. S. Army, Assistant, during the remainder of the month by 2d Lieutenant J. E. Maxfield, Signal Corps, U. S. Army, Assistant. They were verified by 1st Lieutenant Thomas M. Woodruff, 5th Infantry, Acting Signal Officer and Assistant. The percentages for the different districts are: Washington Territory, 78.05; Oregon, 78.06; northern California, 78.12; southern California, 84.64.

## CAUTIONARY SIGNALS.

Of the total number of signals ordered during February, 1887, it was practical to determine the verifications of two hundred and seven; of these, one hundred and sixty-nine, or 81.64 per cent., were fully verified both as to direction and velocity. Number of signals ordered for on-shore winds, seven; verified, six, or 85.71 per cent. Number of signals ordered for northeast winds, ten; fully verified both as to direction and velocity, seven, or 70.00 per cent. Number of signals ordered for northwest winds, one hundred and two; fully verified both as to direction and velocity, seventy-eight, or 76.47 per cent; verified as to velocity only, seven, or 6.86 per cent. Number of signals ordered for winds without regard to direction, eighty-eight; verified, seventy-eight, or 88.64 per cent. Number of signals ordered late, i. e., after the verifying velocity had begun, seventeen, or 8.21 per cent.

In addition to the above, three hundred and ninety-eight sig-